

MOS FET Relays

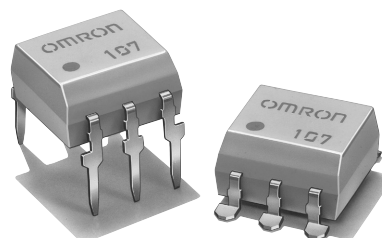
G3VM-21BR/ER

Higher Power, 4A switching with a 20V load, DIP package. Low 20 mΩ ON Resistance.

- Continuous load current of 4A (Connection C: 8A)
- Switches minute analog signals
- Dielectric strength of 2,500 Vrms between I/O
- RoHS Compliant

Application Examples

- Communication equipment and Measurement devices
- Security systems and Power circuits
- Factory Automation equipment



NEW

Note: The actual product is marked differently from the image shown here.

List of Models

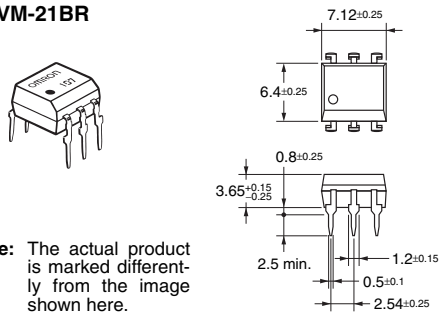
Package Type	Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
DIP6	SPST-NO	PCB terminals	20 V	G3VM-21BR	50	---
		Surface-mounting terminals		G3VM-21ER		
				G3VM-21ER(TR)	---	1,500

Note: The AC peak and DC value are given for the load voltage.

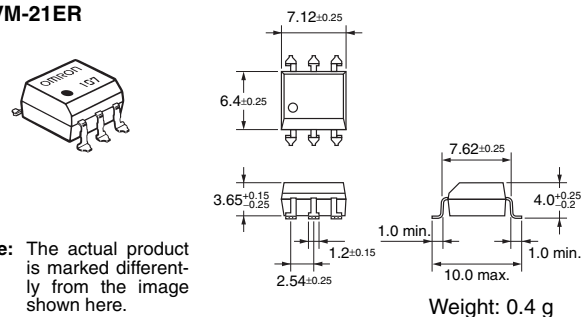
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-21BR

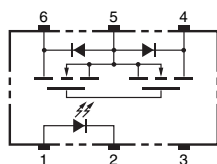


G3VM-21ER

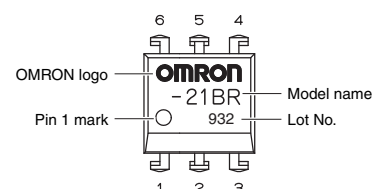
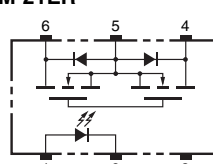


Terminal Arrangement/Internal Connections (Top View)

G3VM-21BR



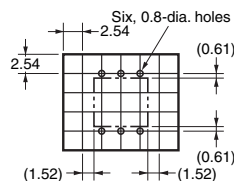
G3VM-21ER



Note: The actual product is marked differently from the image shown here.

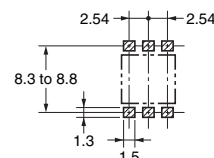
PCB Dimensions (Bottom View)

G3VM-21BR



Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-21ER

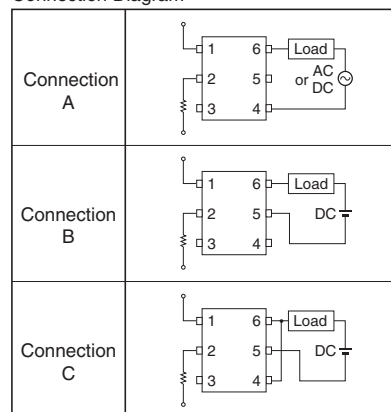


Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	Rating	Unit	Measurement Conditions
Input	LED forward current		I _F	30	mA	
	Repetitive peak LED forward current		I _{FP}	1	A	100 μs pulses, 100 pps
	LED forward current reduction rate		Δ I _F /°C	−0.3	mA/°C	T _a ≥ 25°C
	LED reverse voltage		V _R	5	V	
	Connection temperature		T _j	125	°C	
Output	Load voltage (AC peak/DC)		V _{OFF}	20	V	
	Continuous load current	Connection A	I _O	4	A	Connection A: AC peak/DC Connection B and C: DC
		Connection B		4		
		Connection C		8		
	ON current reduction rate	Connection A	Δ I _O /°C	−40	mA/°C	T _a ≥ 25°C
		Connection B		−40		
		Connection C		−80		
	Pulse on current		I _{OP}	12	A	t=100 ms, Duty = 1/10
	Connection temperature		T _j	125	°C	
Dielectric strength between input and output (See note 1.)			V _{I-O}	2,500	V _{rms}	AC for 1 min
Operating temperature			T _a	−40 to +85	°C	With no icing or condensation
Storage temperature			T _{stg}	−55 to +125	°C	With no icing or condensation
Soldering temperature (10 s)			---	260	°C	10 s

Note: 1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

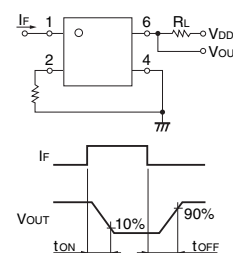
Connection Diagram



Electrical Characteristics (Ta = 25°C)

Item			Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage		V _F	1.18	1.33	1.48	V	I _F = 10 mA
	Reverse current		I _R	---	---	10	μA	V _R = 5 V
	Capacity between terminals		C _T	---	70	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current		I _{FT}	---	0.5	3	mA	I _O = 1 A
Output	Maximum resistance with output ON	Connection A	R _{ON}	---	20	50	mΩ	I _F = 5 mA, I _O = 2 A, t < 1 s
		Connection B		---	10	---	mΩ	I _F = 5 mA, I _O = 2 A, t < 1 s
		Connection C		---	5	---	mΩ	I _F = 5 mA, I _O = 4 A, t < 1 s
	Current leakage when the relay is open		I _{LEAK}	---	---	1.0	μA	V _{OFF} = 20 V
	Capacity between terminals		C _{OFF}	---	1,000	---	pF	V = 0, f = 1 MHz
Capacity between I/O terminals			C _{I-O}	---	0.8	---	pF	f = 1 MHz, V _s = 0 V
Insulation resistance between I/O terminals			R _{I-O}	1,000	---	---	MΩ	V _{I-O} = 500 VDC, R _{oh} ≤ 60%
Turn-ON time			t _{ON}	---	2.5	5.0	ms	I _F = 5 mA, R _L = 200 Ω, V _{DD} = 20 V (See note 2.)
Turn-OFF time			t _{OFF}	---	0.1	1.0	ms	

Note: 2. Turn-ON and Turn-OFF Times

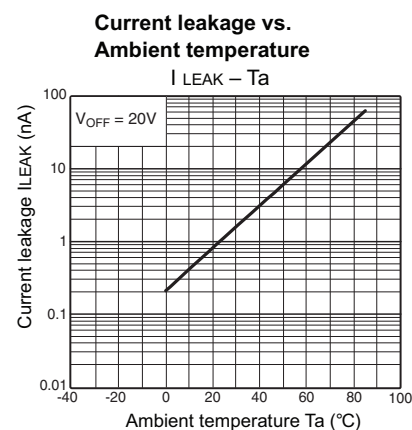
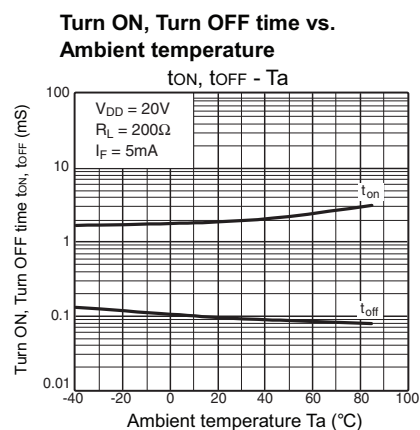
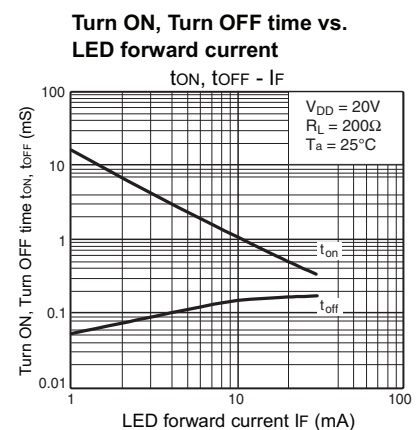
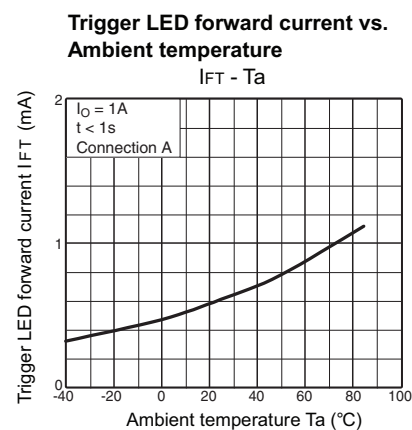
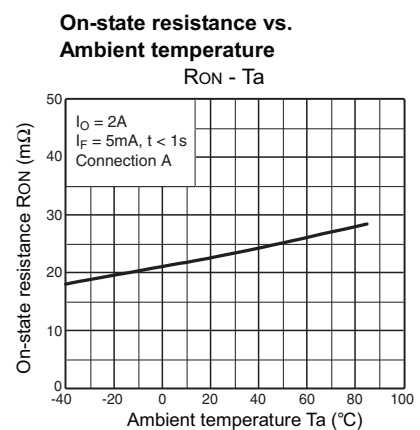
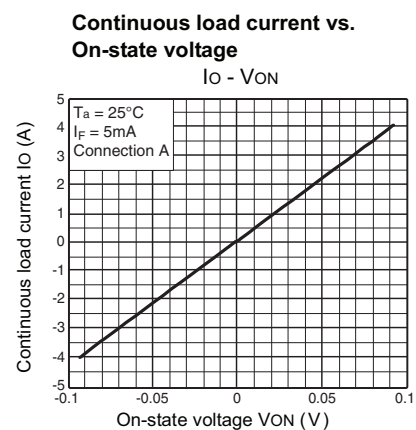
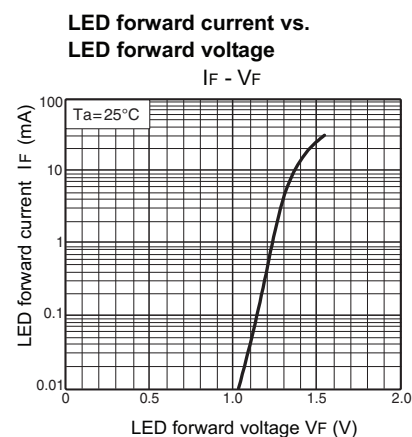
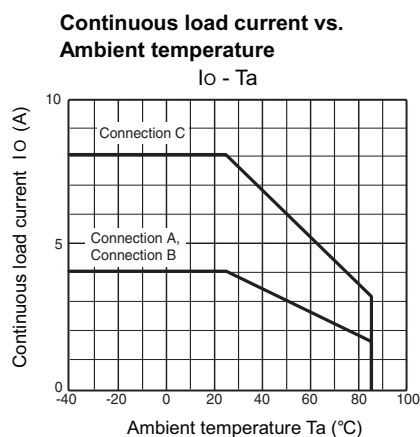
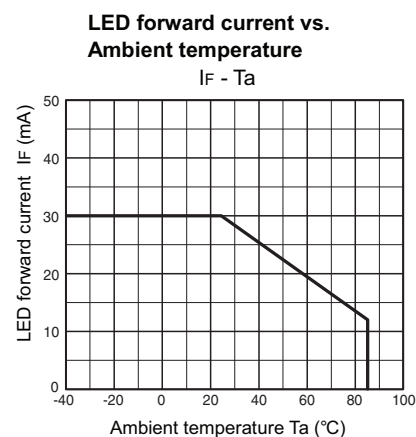


Recommended Operating Conditions

Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	16	V
Operating LED forward current	I_F	5	10	25	mA
Continuous load current (AC peak/DC)	I_O	---	---	4	A
Operating temperature	T_a	-20	---	65	°C

Engineering Data



Precautions

Be sure to read the precautions and information common to all G3VM MOS FET relays, contained in the Technical User's Guide, "MOSFET Relays, Technical Information" for correct use.

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